

Moreover, as already noted, in any event the chances favor rain this summer.

Next, who is Mr. Hatfield? The standing of the United States Weather Bureau at Washington can not be doubted. A request for information, addressed to the Bureau, elicited the following reply:

"Mr. Hatfield attained considerable notoriety in the United States last fall as a pretended rain maker, operating in southern California. The judgment of the Weather Bureau as to this pretension may be found in the accompanying extract contained in the closing paragraph of a letter written by the Chief of the Bureau, October 20, 1905, in reply to a request for information relative to Mr. Hatfield:

"It is, therefore, apparent that the rainfall which was supposed to have been caused by the liberation of a few chemicals of infinitesimal power was simply the result of general atmospheric conditions that prevailed over a large area. It is hoped that the people of Kansas and of other regions in the subarid West will not be misled in this matter, and give undue importance to experiments that doubtless have no value. The processes which operate to produce rain over large areas are of such magnitude that the effects upon them of the puny efforts of man are inappreciable."

In another letter on the subject, to be found in the issue of the MONTHLY WEATHER REVIEW for April, 1905, Mr. Willis L. Moore, the Chief of the United States Weather Bureau, corrected some statements put forward on Mr. Hatfield's behalf. "Your dispatch," he wrote, "stated that the heaviest rain fell in the region of the rain maker, and that the rainfall had not been large in any of the other regions of the subarid West. This statement is erroneous, as during the same period general and excessive rains occurred throughout Arizona and New Mexico. It is known that when barometric pressures for a month are low in the Southwest, the period is one of frequent and heavy rains in that region, and this barometric condition prevailed over New Mexico, Arizona, and southern California during the 3-month period under consideration."

It is rather disagreeable to reflect that at the very time that these warnings were being issued against Mr. Hatfield, the administration of the Yukon was proving so easy a mark for his efforts. What makes this the more striking is that the Yukon Council is not a particularly democratic institution. It is a strongly official body, perhaps a majority of its members being selected from Ottawa—presumably on account of their intelligence, general information, and administrative fitness.

OUTLINE FOR THE STUDY OF METEOROLOGY IN THE NEW YORK STATE NORMAL SCHOOL.

The Education Department of the State of New York gives

considerable attention to the study of meteorology, as a part of the course in geography. The special development of this subject, at the State Normal and Training School in Oswego, is explained by Prof. Amos W. Farnham in the Journal of Geography for February, 1906. We select the following items from his schedule of the study of that subject.

After a series of studies on the earth as a planet, covering the subject of its shape and motion, there comes the section bearing on the gaseous atmosphere, to be followed by physiography, and commercial and political geography. We condense Section II as follows:

- II. The gaseous envelope.
 - A. Atmosphere. 1. Origin. 2. Function.
 - B. Composition. 1. Oxygen. 2. Nitrogen. 3. Carbon dioxide.
 4. Water vapor. 5. Dust—inorganic and organic. 6. "Precious" gases (argon, krypton, helium).
 - C. Temperature—degree of heat. 1. Measurement of temperature. 2. Heat. 3. Various elements affecting temperature.
 4. Isotherms. Isothermal charts studied. Heat equator, cold pole. 5. Thermograph. 6. Heat belts—their areas and boundaries by isotherms.
 - D. Pressure and density. 1. Relation of pressure to density. 2. Relation of density to temperature. 3. Density diminished by diminished gravity, by increased temperature, and by increased amount of water vapor. 4. Measurement of pressure.
 - E. Movements of air—currents. 1. In vertical plane. 2. In horizontal plane—wind. 3. Origin of currents—unequal density of adjacent masses. 4. Classification of winds; planetary; cyclonic winds; tropical hurricanes; western tornadoes; diurnal winds; seasonal winds—monsoons. 5. Deflection of winds—Ferrel's law. 6. Velocity—measured by anemometer. 7. Classification of winds based on velocity.
 - F. Humidity—measured by hygrometer. 1. Absolute and relative. 2. Condensation; causes; forms; distribution—unequal.

CORRIGENDUM.

MONTHLY WEATHER REVIEW for December, 1905, Vol. XXXIII, page 535, column 2, in Table 1, year 1882, losses paid, for "52,112" read "52,122."

FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

During the first half of February a succession of areas of low barometric pressure of moderate intensity crossed the British Isles, two well-defined disturbances moved from the southeastern portion of the Gulf of Mexico northeastward near the Atlantic coast line of the United States, and three areas of high barometer of great magnitude, attended by pronounced cold waves, advanced from the British Northwest Territory to the Atlantic coast. About the middle of the second decade of the month the succession of barometric depressions over the Eastern Atlantic Ocean became slow, and during the latter portion of that decade pressures fell over the Azores, and stagnated barometric conditions and high temperatures set in over the United States east of the Rocky Mountains. The closing days of February were marked by rapid and pronounced weather changes over the United States and in the higher latitudes of the North Atlantic Ocean.

The month was warmer than usual over the Great Plains and thence to the Pacific coast and also over a great portion of the upper Lake region and New England, the departures above the normal exceeding 9° on the northeastern slope of the Rocky Mountains. In the Ohio and middle and lower Mississippi valleys and thence to the Gulf and middle and south Atlantic coasts, monthly mean temperatures were below the normal.

Precipitation was irregularly distributed, both as regards amounts and departures from the normal.

The paths of the more important areas of low barometric pressure, or general storms, of February are traced on Chart III.

The first storm of the month advanced from the eastern portion of the Gulf of Mexico to Nova Scotia during the 8th and 9th, attended by heavy rain in the east Gulf and South

Atlantic States, by snow in the Middle Atlantic and New England States, and by high easterly shifting to northwest winds along the middle Atlantic and southern New England coasts. During the 12th and 13th high winds off the Atlantic coast attended the northeastward advance of a disturbance from the Florida Peninsula. Three disturbances moved eastward from the extreme north Pacific coast during the second decade of the month, their influence in the United States being shown mainly in the warm southerly winds that prevailed over the northern districts from the 15th to 20th. Low area XII, that moved from British Columbia to the Carolina coast from the 24th to 28th, was attended by heavy snow from the middle Mississippi Valley over a great part of the Ohio Valley and in southern portions of the Middle Atlantic States. During the 27th and 28th a disturbance of marked strength advanced eastward over the middle Plateau and middle Rocky Mountain regions.

The first well-defined cold wave of the winter of 1905-6 advanced from Manitoba to the Atlantic coast from the 1st to 3d, with temperature 30° below zero at Winnipeg, Man., on the 1st, and 24° below zero at Sault Ste. Marie, Mich., on the 2d. On the morning of the 3d the temperature was below zero in the interior of New York and New England, the line of 10° was traced through the District of Columbia and southwestern Virginia, and the line of freezing temperature through northwestern Florida. From the 3d to 6th a cold wave advanced from the Rocky Mountains over the central valleys and the Middle Atlantic and New England States, carrying the line of zero temperature to Kansas, the Ohio River, and the interior of New York and New England. From the 13th to 15th a cold wave swept from British America to the Atlan-